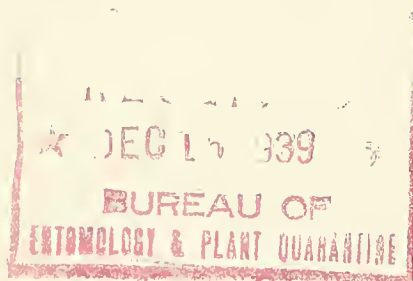


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AND
THE STATE ENTOMOLOGICAL
AGENCIES COOPERATING

STATUS OF THE EUROPEAN CORN BORER IN 1939

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Distribution

The territory in northeastern United States known to be infested by the European corn borer (Pyrausta nubilalis Hbn.) was extended in 1939 to include Cook, Du Page, Kankakee, Lake, and Will Counties in Illinois; Camden, Currituck, and Pasquotank Counties in North Carolina; Kent and New Castle Counties in Delaware; Chester, Delaware, Lancaster, and Montgomery Counties in Pennsylvania; Dodge, Green Lake, Jefferson, Oconto, Outagamie, Shawano, and Waupaca Counties in Wisconsin; and Lancaster, Nansemond, and Richmond Counties in Virginia.

Fall Abundance

An extensive survey to determine the relative abundance of the European corn borer in corn over the greater part of the territory infested by the insect was conducted in the fall of 1939 by the Bureau of Entomology and Plant Quarantine in cooperation with interested States. The survey procedure utilized by the Bureau in 1939 was somewhat modified from that of previous years, the change resulting in an increase in the size of the area that could be examined without

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The information presented in this report was assembled at Toledo, Ohio, as a phase of European corn borer research, with W. A. Baker in charge. All data on abundance of the corn borer in the fall of 1939 in Indiana (35 counties), Maine (13 counties), and New Jersey (19 counties) were collected by the State Conservation Department of Indiana and the State Departments of Agriculture of Maine and New Jersey, respectively. The Agricultural Experiment Station at Geneva, N. Y., surveyed 10 counties in eastern New York, the Vermont Department of Agriculture surveyed 10 counties in the northern half of Vermont, and the New Hampshire Agricultural Experiment Station surveyed 5 counties in eastern New Hampshire. Some assistance in the field work was also given by the agricultural experiment stations of Delaware, Maryland, and Massachusetts in their respective States. First records of the European corn borer in Illinois were contributed by the Natural History Survey and State Department of Agriculture of Illinois, and in North Carolina by the State Department of Agriculture, and new county records of the insect within States already infested were furnished by the State Departments of Agriculture of Pennsylvania, Virginia, and Wisconsin. The Bureau of Entomology and Plant Quarantine is appreciative of the interest and cooperation of all States in which the survey was conducted or from which records of distribution were obtained in 1939.

serious sacrifice in the adequateness of the data obtained. With the exception of the counties surveyed in Indiana and Maine, 10 cornfields distributed at random were examined in each county included in the program, the sampling in each field consisting of a count of infestation in 25 consecutive plants taken a short distance into the field from near the middle of its most accessible edge, and the dissection of the first 2 plants found infested to determine the number of borers per infested plant. In Indiana and Maine, where an average of 20 to 25 cornfields were taken at random within each county, the population figure for each field was based on the examination of 100 plants (25 consecutive plants in the approximate center of each quarter of the field) and the dissection of either 5 or 10 infested plants. In either procedure, the product of the percentage of plant infestation in a field and the average number of borers per infested plant provided a figure designated as the average number of borers per 100 plants. The population averages derived in this way for the individual fields were then grouped in the calculation of county averages.

In the 1939 survey a total of 3,489 cornfields were examined in 285 counties of 16 States infested by the European corn borer. Two small counties were combined in each of 2 States and each pair treated as a single county. The number of counties surveyed and the resultant average number of borers per 100 plants in each State, and in the entire area, are given in table 1. In an alphabetical arrangement by States and the counties surveyed within each of them, the data on average number of borers per 100 plants in 1939 are presented in table 2, together with comparable figures obtained in 1938 and in certain other years when more or less extensive surveys were conducted by the Bureau. Definite comparisons of the abundance of the corn borer in 1939 and 1938 are possible only for those counties or county groups surveyed in these 2 years, and on this basis the status of the insect in 1939, as compared with 1938, is shown on map 1. The relative abundance of the corn borer over the entire area surveyed in 1939 is illustrated on map 2. In reading the data given in the tables it should be noted that a zero recorded for any county merely indicates a population so low that no infested plants occurred within the counts made and does not mean the complete absence of the borer. The following discussion summarizes the more important features of the survey data.

The greatest abundance of the European corn borer in the United States in the fall of 1939 was found in southern New England, where 5 counties in eastern Massachusetts, 2 in central and 2 in eastern Connecticut, and 4 in Rhode Island averaged 501-900 borers per 100 plants, and in the tip of the "thumb" section of Michigan, where 1 county had a borer population of this size. Populations of 101-500 borers per 100 plants appeared in 4 counties in central and 1 in southeastern Massachusetts, 2 in western and 2 in central Connecticut, 2 in southeastern New Hampshire, 1 in southeastern and 2 in northwestern Vermont, 1 in western and 5 in eastern New York and 2 on Long Island, 3 in northeastern and 1 in central New Jersey, 1 in southeastern Pennsylvania, 1 in northeastern and 14 in northwestern Ohio, 5 in eastern Indiana, and 15 in southeastern Michigan. In the remainder of the territory surveyed in 1939, comprising 209 of the 285 counties covered, the average number of borers per 100 plants in a county was not over 100.

Indiana.—A highly significant increase in abundance of the corn borer in 1939 over 1938 occurred in the region of 35 counties surveyed in both years in Indiana, where the average number of borers per 100 plants more than doubled from 14.9 in 1938 to 34.1 in 1939. Significant increases took place in 22 of the in-

dividual counties, whereas in each of the other 13 the population of the insect showed no significant change in these 2 years. The heaviest concentration of the borer in Indiana in 1939 was found in a group of 5 counties near the eastern border of the State, namely, Adams, Wells, Allen, Jay, and Blackford, in which the numbers of borers per 100 plants were, respectively, 177.0, 151.2, 147.9, 127.7, and 106.4. Less than 91 borers per 100 plants were present in each of the remaining 30 counties surveyed in Indiana.

Ohio.--In Ohio comparisons of borer infestation in 1938 and 1939 are available for 12 counties in the extreme northwestern part of the State. In this section, as a whole, the average of 108.7 borers per 100 plants in 1939 was not significantly different from that of 133 in 1938. In none of the 12 counties was there a significant increase in number of borers from 1938 to 1939; in 8 of them the populations of the insect for these 2 years remained at about the same level, and in 4 a definite decrease occurred from 1938 to 1939. Van Wert County, with 374.8 borers per 100 plants, had the highest infestation of any county surveyed in Ohio in 1939. The next 3 highest counties in the State were Marion, Putnam, and Auglaize, with populations of 278.6, 211.6, and 201.4 borers per 100 plants, respectively. Only 10 other counties in northwestern and 1 in northeastern Ohio averaged over 100 borers per 100 plants in 1939, populations below this level occurring in each of the other 44 counties surveyed in the State. Abundance of the corn borer was relatively low (averaging less than 67 borers per 100 plants) in 30 counties surveyed in the eastern half of the State where high infestation has never been recorded since the introduction and spread of the insect over the area.

Michigan.--Among 6 counties of southeastern Michigan whose data are comparable for 1938 and 1939, there were 2 counties in which populations of the corn borer increased significantly in 1939 over 1938, 3 in which there was no change, and 1 in which the abundance of the insect decreased from 1938 to 1939. The net result in this section was a significant increase from 122.7 borers per 100 plants in 1938 to 162.0 in 1939. Huron County, at the extreme tip of the "thumb" section of Michigan, with its average of 595 borers per 100 plants, exceeded all other counties in the State in 1939 and was the heaviest infested county outside of New England. Four other counties in eastern Michigan--Genesee, Tuscola, Lapeer, and Ingham--had high populations of 447.0, 416.4, 376.2, and 347.0 borers per 100 plants, respectively, and 11 other counties in the State averaged between 101 and 300 borers per 100 plants. Each of the remaining 15 counties surveyed in Michigan averaged less than 100 borers per 100 plants.

Pennsylvania.--Corn borer infestation was relatively light in 5 counties in northwestern and 14 in northeastern Pennsylvania surveyed in 1939. Bucks County, on the eastern border of the State, with 142 borers per 100 plants, was the only county in Pennsylvania in which the average number of borers per 100 plants was greater than 23.

New York.--With the exception of 6 counties in New York State proper and 2 on Long Island, populations of the corn borer in the 48 counties surveyed in that State in 1939 were relatively light (less than 95 borers per 100 plants). Niagara County, with 227 borers per 100 plants, was the only high county in the western part of New York. In eastern New York, Albany County had 491.4 borers per 100 plants, and the counties of Nassau, Suffolk, Otsego, Renesselaer, Columbia, and Fulton were infested with 251.8, 191.2, 177.0, 160.4, 139.8, and 101.8 borers per

100 plants, respectively. The general level of population in the county group of Chautauqua-Erie-Niagara was about the same in 1939 as in 1938, while in the combined counties of Jefferson and Oswego there was a decrease in 1939 from 1938.

Vermont, New Hampshire, and Maine.—In Vermont, Windham County in the south eastern corner of the State, with 142.8 borers per 100 plants, and Chittenden and Grand Isle Counties in the northwestern part, with 117.6 and 106.0 borers per 100 plants, respectively, were the only counties of the 14 surveyed in the State in 1939 which averaged over 94 borers per 100 plants. In New Hampshire, Rockingham and Hillsboro Counties in the southeastern part of the State had respective populations of 148.8 and 103.4 borers per 100 plants, whereas each of the other 7 counties surveyed in the State averaged less than 44 borers per 100 plants. Borer abundance in all of the 13 counties surveyed in Maine in 1939 was relatively light, averaging over 5 borers per 100 plants in only York and Lincoln Counties, in which 72.9 and 50.6 borers per 100 plants, respectively, were found.

Massachusetts, Rhode Island, and Connecticut.—In Massachusetts in 1939 the 7 counties of Middlesex, Barnstable, Essex, Norfolk, Bristol, Plymouth, and Hampden averaged 860.8, 774.8, 770.4, 585.0, 573.6, 391.0, and 387.0 borers per 100 plants, respectively. Three of the remaining counties in the State had from 101 to 300 borers per 100 plants, but Berkshire County was low, with only 4.8 borers per 100 plants. Populations of the borer in all 4 counties of Rhode Island were high in 1939, ranging from 504.4 borers per 100 plants in Washington to 859.6 in Bristol-Newport County. In Connecticut, New London County, with 807.2 borers per 100 plants, was followed by Windham, Hartford, New Haven, Middlesex, Tolland, Fairfield, and Litchfield Counties, with 523.0, 520.4, 503.2, 425.4, 366.8, 321.4, and 300.2 borers per 100 plants, respectively. The corn borer was significantly lower in abundance in Hartford and New Haven Counties in 1939 than in 1938.

New Jersey.—Generally reduced abundance of the corn borer in 1939 from 1938 appeared in Burlington, Mercer, and Monmouth Counties, although individual cornfields that carried very high populations of the insect could be found in this section in 1939. No significant change occurred in the status of the borer in Middlesex County and in the county group of Camden and Gloucester between 1938 and 1939. Populations averaging over 100 borers per 100 plants in 1939 were noted in Bergen, Burlington, Middlesex, and Essex-Union Counties of New Jersey, with 292.8, 220.8, 211.0, and 147.2 borers per 100 plants, respectively. In the remaining 15 counties of the State fewer than 100 borers per 100 plants were found.

Delaware, Maryland, and Virginia.—Infestation by the corn borer in 1939 was found in all 3 counties of Delaware, with relatively low populations of 11.4, 11.2, and 4.0 borers per 100 plants in Sussex, Kent, and New Castle Counties, respectively. Sussex County in Delaware had approximately the same number of borers in 1939 as in 1938. In the combined counties of Wicomico and Worcester in Maryland the level of corn borer abundance changed little from 1938 to 1939. The 1939 survey showed 11.4, 4.8, and 1.2 borers per 100 plants in Worcester, Wicomico, and Somerset Counties, respectively. There was a significant increase in corn borer abundance in 1939 over 1938 on the Eastern Shore of Virginia, where Northampton County in 1939 averaged 54.8 and Accomac 28.0 borers per 100 plants.

Abundance in Sweet Corn and White Potatoes

Special surveys of abundance of the first generation of the European corn borer in early market sweet corn and in white potatoes were conducted in several localities in the summer of 1939.^{2/} In the case of sweet corn the surveyed field represented those most heavily infested within a given locality. Fields of potatoes were surveyed at random. The data on sweet corn are given in table 3.

Infestation of the European corn borer in early market sweet corn in 1939 was most severe in New Haven County, Conn., where half of the fields surveyed averaged 20 or more borers per plant, and in Ulster County, N. Y., where the same proportion of fields averaged 10 or more borers per plant. In New Haven County the average number of borers per 100 plants was 1,980 and in Ulster County 1,264. The greatest increase of the pest in sweet corn occurred in Burlington County, N. J., where an average of 50 borers per 100 plants in 1938 changed to 417 in 1939. Less than half as many borers infested the crop in Lucas County, Ohio, in 1939, when the average number per 100 plants was 817, as in 1938 when it was 1,750. The heaviest population in early market sweet corn in any of the 4 counties surveyed in southwestern Maine in 1939 was in York County where there were 125 borers per 100 plants.

The corn borer was less abundant in 1939 than in 1938 in white potatoes grown in central Connecticut and Massachusetts. In the former State the number of borers per 100 potato plants in 1938 was 358, as compared with 145 in 1939; in the latter State, the population of the insect in each 100 plants was 280 in 1938 and 170 in 1939. The number of borers per 100 plants of potatoes in central New Jersey in 1939 averaged 17.9.

There is little doubt that the relative status of the European corn borer in 1939, as in other years, was influenced to a great extent by prevailing weather conditions during certain critical stages of the insect's development but it is difficult to give exact and satisfying reasons for the increases, decreases, or comparative stability of populations of the pest in the comparable territory surveyed in 1938 and in 1939. Dryness in the spring or summer months was probably the most adverse factor influencing survival of the corn borer in 1939, although too abundant rainfall at particular times may also have been unfavorable to the insect. Extremes in moisture conditions characterized the summer of 1939 in practically all sections of the country concerned in this report, whereas fluctuations in temperature were in general less pronounced. For instance, April was the fourth consecutive wet month in New Jersey and was also wet farther south along the Atlantic coast. The month of May was generally dry from Indiana east to the New England coast and south through New Jersey to the Eastern Shore of Virginia. In June precipitation was excessive in Ohio, Michigan, and Indiana but in the more eastern States it varied slightly above or below normal. While moisture conditions in July were about normal in Ohio, Michigan, and Indiana, the weather that month in New York State and east through most of New England and New Jersey developed into a serious drought. In New York dry weather continued into August and in Ohio the month was one of the driest Augusts on record. On the other hand August was a month of excessive rainfall in New Jersey and New England.

^{2/}The survey of sweet corn in New York was made in cooperation with the Agricultural Experiment Station, Geneva, N. Y., and the data on infestation in this crop in Maine were kindly furnished by the State Department of Agriculture of Maine.

Table 1.--Data on abundance of European corn borer in corn, fall of 1939,
summary by States

State	Counties	Average borers per 100 plants
	Number	Number
Connecticut-----	8	471.0
Delaware-----	3	8.9
Indiana-----	35	34.1
Maine-----	13	10.2
Maryland-----	3	5.8
Massachusetts-----	11	451.5
Michigan-----	31	148.1
New Hampshire-----	9	51.4
New Jersey-----	19	70.1
New York-----	48	61.9
Ohio-----	59	62.0
Pennsylvania-----	20	10.8
Rhode Island-----	4	664.1
Vermont-----	14	58.1
Virginia-----	2	41.4
Wisconsin-----	6	3.3
Total-----	285	--
Areal average-----	--	94.4

Table 2.--Data on abundance of European corn borer in corn, fall of 1939,
and comparisons with data for other years

State and county	Average borers per 100 plants		
	1932	1938	1939
	Number	Number	Number
<u>Connecticut:</u>			
Fairfield-----	21.1	--	321.4
Hartford-----	50.7	1,130.3	520.4
Litchfield-----	1.3	--	300.2
Middlesex-----	31.5	--	425.4
New Haven-----	2.4	842.3	503.2
New London-----	76.7	--	807.2
Tolland-----	6.7	--	366.8
Windham-----	13.0	--	523.0
<u>Averages:</u>			
2 counties-----	26.6	986.3	511.8
8 counties-----	25.4	--	471.0

Table 2.--Data on abundance of European corn borer in corn, fall of 1939, and comparisons with data for other years--Continued

State and county	Average borers per 100 plants		
	1936	1938	1939
	Number	Number	Number
<u>Delaware:</u>			
Kent-----	--	--	11.2
New Castle-----	--	--	4.0
Sussex-----	1.1	7.9	11.4
<u>Average:</u>			
3 counties-----	--	--	8.9
	1932	1938	1939
<u>Indiana:</u>			
Adams-----	1.4	124.7	177.0
Allen-----	7.0	105.3	147.9
Blackford-----	.1	31.7	106.4
De Kalb-----	9.8	27.7	90.3
Delaware-----	.4	12.7	16.2
Elkhart-----	.5	1.2	1.4
Fayette-----	--	5.1	3.2
Fulton-----	.2	.7	1.5
Grant-----	.1	5.1	25.4
Hamilton-----	--	1.6	4.9
Hancock-----	--	.9	3.5
Henry-----	.1	2.6	7.5
Howard-----	--	.8	15.4
Huntington-----	.7	8.7	51.0
Jay-----	.2	25.9	127.7
Kosciusko-----	.2	.9	5.3
Lagrange-----	.5	7.9	6.8
La Porte-----	--	1.1	.8
Madison-----	--	1.4	11.4
Marshall-----	.1	.2	1.1
Miami-----	0--	.8	14.3
Noble-----	1.7	21.4	38.5
Porter-----	--	.04	.04
Randolph-----	.1	8.3	38.0
Rush-----	--	1.6	7.1
St. Joseph-----	0--	.3	1.3
Shelby-----	--	.2	2.2
Starke-----	--	.3	.3
Steuben-----	2.9	34.8	44.4
Tipton-----	--	2.1	9.3
Union-----	--	4.4	5.0
Wabash-----	.5	4.0	32.4
Wayne-----	.1	4.3	3.1
Wells-----	.8	56.3	151.2
Whitley-----	1.5	18.0	41.5

Table 2.--Data on abundance of European corn borer in corn, fall of 1939, and comparisons with data for other years--Continued

State and county	Average borers per 100 plants		
	1932	1938	1939
	Number	Number	Number
<u>Average:</u>			
23 counties-----	1.3	21.9	49.1
35 counties-----	--	14.9	34.1
	1930	1932	1939
<u>Maine:</u>			
Androscoggin-----	--	--	0
Cumberland-----	0	--	4.6
Franklin-----	--	--	.9
Hancock-----	0	--	.2
Kennebec-----	--	--	0
Knox-----	0	--	.4
Lincoln-----	5.6	9.4	50.6
Oxford-----	--	--	1.5
Penobscot-----	--	--	.1
Sagadahoc-----	0	--	.2
Somerset-----	--	--	1.1
Waldo-----	0	--	0
York-----	.6	30.6	72.9
<u>Average:</u>			
7 counties-----	0.9	--	18.4
2 counties-----	--	20.0	61.8
13 counties-----	--	--	10.2
	1935	1938	1939
<u>Maryland:</u>			
Somerset-----	--	--	1.2
Wicomico-----	0.1	2.3	4.8
Worcester-----	18.7	15.5	11.4
<u>Average:</u>			
2 counties-----	9.4	8.9	8.1
3 counties-----	--	--	5.8
	1930	1932	1939
<u>Massachusetts:</u>			
Barnstable-----	73.7	221.4	774.8
Berkshire-----	--	--	4.8
Bristol-----	287.6	206.8	573.6
Essex-----	43.6	211.8	770.4
Franklin-----	--	9.7	104.2
Hampden-----	--	6.5	387.0
Hampshire-----	--	17.1	251.6
Middlesex-----	347.3	153.0	860.8
Norfolk-----	536.5	190.7	585.0
Plymouth-----	102.7	132.6	391.0
Worcester-----	45.4	18.8	263.4

Table 2.--Data on abundance of European corn borer in corn, fall of 1939, and comparisons with data for other years--Continued

State and county	Average borers per 100 plants		
	1930	1932	1939
	Number	Number	Number
<u>Average:</u>			
7 counties-----	205.3	162.2	602.7
10 counties-----	--	116.8	496.2
11 counties-----	--	--	451.5
<u>Michigan:</u>	1932	1938	1939
Allegan-----	0	--	26.6
Barry-----	--	--	55.2
Berrien-----	0	--	63.0
Branch-----	0.2	--	34.0
Calhoun-----	--	--	19.4
Cass-----	0	--	6.0
Clinton-----	--	--	118.2
Eaton-----	--	--	47.0
Genesee-----	45.2	--	447.0
Gratiot-----	--	--	207.8
Hillsdale-----	2.9	--	35.6
Huron-----	22.1	--	595.0
Ingham-----	17.8	--	347.0
Ionia-----	--	--	74.8
Jackson-----	17.4	--	29.6
Kalamazoo-----	--	--	31.4
Lapeer-----	33.5	--	376.2
Lenawee-----	50.0	206.4	118.8
Livingston-----	18.0	--	7.8
Macomb-----	72.6	191.2	132.8
Monroe-----	72.7	124.8	240.0
Oakland-----	22.9	--	73.4
Saginaw-----	--	--	173.8
St. Clair-----	20.8	74.4	197.0
St. Joseph-----	.1	--	25.0
Sanilac-----	53.8	--	168.0
Shiawassee-----	--	--	242.2
Tuscola-----	50.1	--	416.4
Van Buren-----	0	--	0
Washtenaw-----	49.7	73.2	167.6
Wayne-----	59.7	65.9	116.0
<u>Average:</u>			
22 counties-----	27.7	--	164.7
6 counties-----	--	122.7	162.0
31 counties-----	--	--	148.1

Table 2.--Data on abundance of European corn borer in corn, fall of 1939, and comparisons with data for other years--Continued

State and county	Average borers per 100 plants		
	1932	--	1939
	Number	Number	Number
<u>New Hampshire:</u>			
Belknap-----	--	--	38.6
Carroll-----	--	--	21.6
Cheshire-----	0	--	43.4
Grafton-----	--	--	4.2
Hillsboro-----	20.4	--	103.4
Merrimack-----	--	--	36.2
Rockingham-----	24.6	--	148.8
Strafford-----	14.7	--	33.8
Sullivan-----	--	--	33.0
<u>Average:</u>			
4 counties-----	14.9	--	82.4
9 counties-----	--	--	51.4
<hr/>			
	1932	1938	1939
<u>New Jersey:</u>			
Atlantic-----	0	--	22.6
Bergen-----	--	--	292.8
Burlington-----	0	818.3	220.8
Camden-----	--	73.8	61.6
Cape May-----	--	--	1.2
Cumberland-----	--	--	14.2
Essex-Union-----	--	--	147.2
Gloucester-----	--	116.7	53.0
Hunterdon-----	--	--	8.0
Mercer-----	--	639.7	22.6
Middlesex-----	--	536.1	211.0
Monmouth-----	0.9	914.9	98.6
Morris-----	--	--	57.6
Ocean-----	.2	--	23.2
Passaic-----	--	--	32.9
Salem-----	--	--	10.8
Somerset-----	--	--	40.6
Sussex-----	--	--	6.8
Warren-----	--	--	6.0
<u>Average:</u>			
4 counties-----	0.3	--	91.3
6 counties-----	--	516.6	111.3
19 counties-----	--	--	70.1

Table 2.--Data on abundance of European corn borer in corn, fall of 1939,
and comparisons with data for other years.--Continued

State and county	Average borers per 100 plants		
	1930	1938	1939
	Number	Number	Number
New York:			
Albany	1.6	--	419.4
Allegany	6.3	--	.8
Broome	--	--	2.8
Cattaraugus	6.7	--	13.2
Cayuga	7.5	--	44.0
Chautauqua	28.4	96.3	17.8
Chemung	.1	--	0
Chenango	--	--	27.8
Columbia	.9	--	139.8
Cortland	0	--	13.8
Delaware	0	--	51.6
Dutchess	--	--	87.8
Erie	22.5	72.8	34.4
Fulton	13.9	--	101.8
Genesee	23.4	--	29.2
Greene	1.6	--	35.8
Herkimer	5.0	--	41.6
Jefferson	47.4	252.2	51.2
Lewis	3.4	--	14.0
Livingston	18.1	--	1.2
Madison	1.3	--	29.8
Monroe	27.9	--	15.2
Montgomery	14.0	--	58.2
Nassau	0	--	251.8
Niagara	61.3	117.8	227.0
Oneida	5.4	--	53.6
Onondaga	4.7	--	50.6
Ontario	48.1	--	4.0
Orange	--	--	79.8
Orleans	94.6	--	67.8
Oswego	29.3	173.7	35.2
Otsego	.8	--	177.0
Rensselaer	1.9	--	160.4
Saratoga	8.2	--	65.4
Schenectady	11.1	--	50.6
Schoharie	4.2	--	19.8
Schuyler	1.8	--	.8
Seneca	3.8	--	1.4
Steuben	10.9	--	30.6
Suffolk	65.7	--	191.2
Sullivan	--	--	9.2
Tioga	--	--	7.0
Tompkins	1.6	--	12.8
Ulster	0	--	83.6

Table 2.--Data on abundance of European corn borer in corn, fall of 1939, and comparisons with data for other years.--Continued

State and county	Average borers per 100 plants		
	1930	1938	1939
	Number	Number	Number
<u>New York (Cont'd.):</u>			
Washington-----	9.8	--	58.0
Wayne-----	19.7	--	94.0
Wyoming-----	14.8	--	6.0
Yates-----	9.7	--	2.4
<u>Average:</u>			
42 counties-----	15.2	--	65.6
5 counties-----	--	142.6	73.1
48 counties-----	--	--	61.9
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	1932	1938	1939
<u>Ohio:</u>			
Allen-----	40.6	--	154.8
Ashland-----	4.7	--	13.4
Ashtabula-----	4.8	--	35.2
Auglaize-----	20.9	--	201.4
Belmont-----	--	--	0
Carroll-----	--	--	.4
Champaign-----	8.1	--	23.6
Clark-----	1.3	--	5.8
Columbiana-----	--	--	12.0
Coshocton-----	--	--	5.2
Crawford-----	9.3	--	12.6
Cuyahoga-----	--	--	54.8
Darke-----	.3	--	23.2
Defiance-----	12.8	190.7	35.0
Delaware-----	6.0	--	29.6
Erie-----	46.1	--	22.6
Franklin-----	--	--	3.0
Fulton-----	46.2	272.3	91.8
Geauga-----	2.8	--	5.8
Guernsey-----	--	--	.4
Hancock-----	53.8	127.9	182.6
Hardin-----	37.6	--	131.6
Harrison-----	--	--	0
Henry-----	52.7	188.8	120.0
Holmes-----	--	--	.8
Huron-----	8.4	--	5.4
Jefferson-----	--	--	0
Knox-----	2.2	--	47.6
Lake-----	36.8	--	139.8
Licking-----	--	--	13.0
Logan-----	21.1	--	177.8
Lorain-----	5.6	--	31.0
Lucas-----	49.8	212.3	191.0

Table 2.--Data on abundance of European corn borer in corn, fall of 1939,
and comparisons with data for other years.--Continued

State and county	Average borers per 100 plants		
	1932	1938	1939
	Number	Number	Number
Ohio (Cont'd.):			
Madison-----	2.5	--	23.0
Mahoning-----	--	--	8.6
Marion-----	24.8	--	278.6
Medina-----	2.6	--	4.4
Mercer-----	1.6	--	77.8
Miami-----	3.4	--	.8
Morrow-----	4.4	--	66.0
Muskingum-----	--	--	0
Ottawa-----	49.7	41.6	65.4
Paulding-----	30.5	77.1	105.4
Portage-----	.7	--	3.2
Putnam-----	48.0	40.2	211.6
Richland-----	5.5	--	30.8
Sandusky-----	66.3	104.3	80.0
Seneca-----	46.6	81.8	35.0
Shelby-----	1.9	--	56.0
Stark-----	3.7	--	4.6
Summit-----	3.2	--	3.8
Trumbull-----	--	--	2.8
Tuscarawas-----	--	--	0
Union-----	5.6	--	102.6
Van Wert-----	14.7	--	374.8
Wayne-----	3.4	--	5.2
Williams-----	27.1	136.5	35.6
Wood-----	66.5	122.3	151.2
Wyandot-----	17.2	--	160.2
Average:			
44 counties-----	20.5	--	80.9
12 counties-----	--	133.0	108.7
59 counties-----	--	--	62.0
	1930	1935	1939
Pennsylvania:			
Bradford-----	0.4	--	0
Bucks-----	--	--	142.0
Carbon-----	--	--	0
Crawford-----	.5	.6	3.0
Erie-----	9.9	2.1	23.0
Lackawanna-----	--	--	0
Lawrence-----	.2	--	.4
Lehigh-----	--	--	10.4
Lycoming-----	--	--	2.0
Luzerne-----	--	--	0
Mercer-----	.5	--	4.8

Table 2.—Data on abundance of European corn borer in corn, fall of 1939,
and comparisons with data for other years--Continued

State and county	Average borers per 100 plants		
	1930	1935	1939
	Number	Number	Number
<u>Pennsylvania (Cont'd.):</u>			
Monroe-----	--	--	2.0
Northampton-----	--	--	18.0
Pike-----	--	--	6.0
Sullivan-----	--	--	0
Susquehanna-----	--	--	0
Tioga-----	1.8	--	0
Venango-----	.4	--	4.8
Wayne-----	--	--	0
Wyoming-----	--	--	0
<u>Average:</u>			
7 counties-----	2.0	--	5.1
2 counties-----	5.2	1.4	13.0
20 counties-----	--	--	10.8
	1930	1932	1939
<u>Rhode Island:</u>			
Bristol-Newport-----	95.1	190.0	859.6
Kent-----	61.7	110.7	572.8
Providence-----	30.7	48.1	719.4
Washington-----	21.6	24.4	504.4
<u>Average:</u>			
4 counties-----	52.3	93.3	664.1
	1932	1935	1939
<u>Vermont:</u>			
Addison-----	3.7	15.5	22.2
Bennington-----	36.9	16.9	71.4
Caledonia-----	--	--	6.8
Chittenden-----	--	31.9	117.6
Essex-----	--	--	2.8
Franklin-----	--	--	47.6
Grand Isle-----	--	146.8	106.0
Lamoille-----	--	--	40.8
Orange-----	2.4	--	51.6
Orleans-----	--	--	16.8
Rutland-----	10.7	42.4	61.0
Washington-----	--	13.9	32.4
Windham-----	4.9	--	142.8
Windsor-----	10.8	--	93.6

Table 2.--Data on abundance of European corn borer in corn, fall of 1939, and comparisons with data for other years.--Continued

State and county	Average borers per 100 plants		
	1932	1935	1939
	Number	Number	Number
Average:			
6 counties-----	11.6	--	73.8
6 counties-----	--	44.6	68.4
14 counties-----	--	--	58.1
	1935	1938	1939
Virginia:			
Accomac-----	21.0	8.1	28.0
Northampton-----	12.9	16.4	54.8
Average:			
2 counties-----	17.0	12.3	41.4
Wisconsin:	1939	--	--
Kenosha-----	0.4	--	--
Milwaukee-----	0	--	--
Ozaukee-----	16.2	--	--
Racine-----	0	--	--
Washington-----	3.0	--	--
Waukesha-----	0	--	--
Average:			
6 counties-----	3.3	--	--

Table 3.--Data on abundance of European corn borer in early market sweet corn, summers of 1938 and 1939

State and county	1938		1939	
	:Average borers:		:Average borers	
	:Fields:per 100 plants:		:Fields:per 100 plants	
	:Number:	Number	:Number:	Number
<u>Connecticut:</u>				
New Haven-----	25	878	25	1,980
<u>Maine:</u>				
Androscoggin-----	--	--	19	10
Cumberland-----	--	--	25	63
Lincoln-----	--	--	14	89
York-----	--	--	25	125
<u>New Jersey:</u>				
Burlington-----	21	50	29	417
<u>New York:</u>				
Albany-----	12	624	17	753
Columbia-----	8	403	17	537
Dutchess-----	--	--	3	348
Nassau-----	--	--	14	295
Rensselaer-----	--	--	5	990
Saratoga-----	--	--	7	242
Schenectady-----	7	272	5	379
Suffolk-----	--	--	11	97
Ulster-----	--	--	14	1,264
Westchester-----	--	--	1	575
<u>Ohio:</u>				
Lucas-----	25	1,751	25	817

Map 1. Status of the European corn borer in 1939 as compared with 1938

Legend:

- Black square: Increase
- Diagonal lines square: Unchanged
- Cross-hatched square: Decrease

County border of infestation

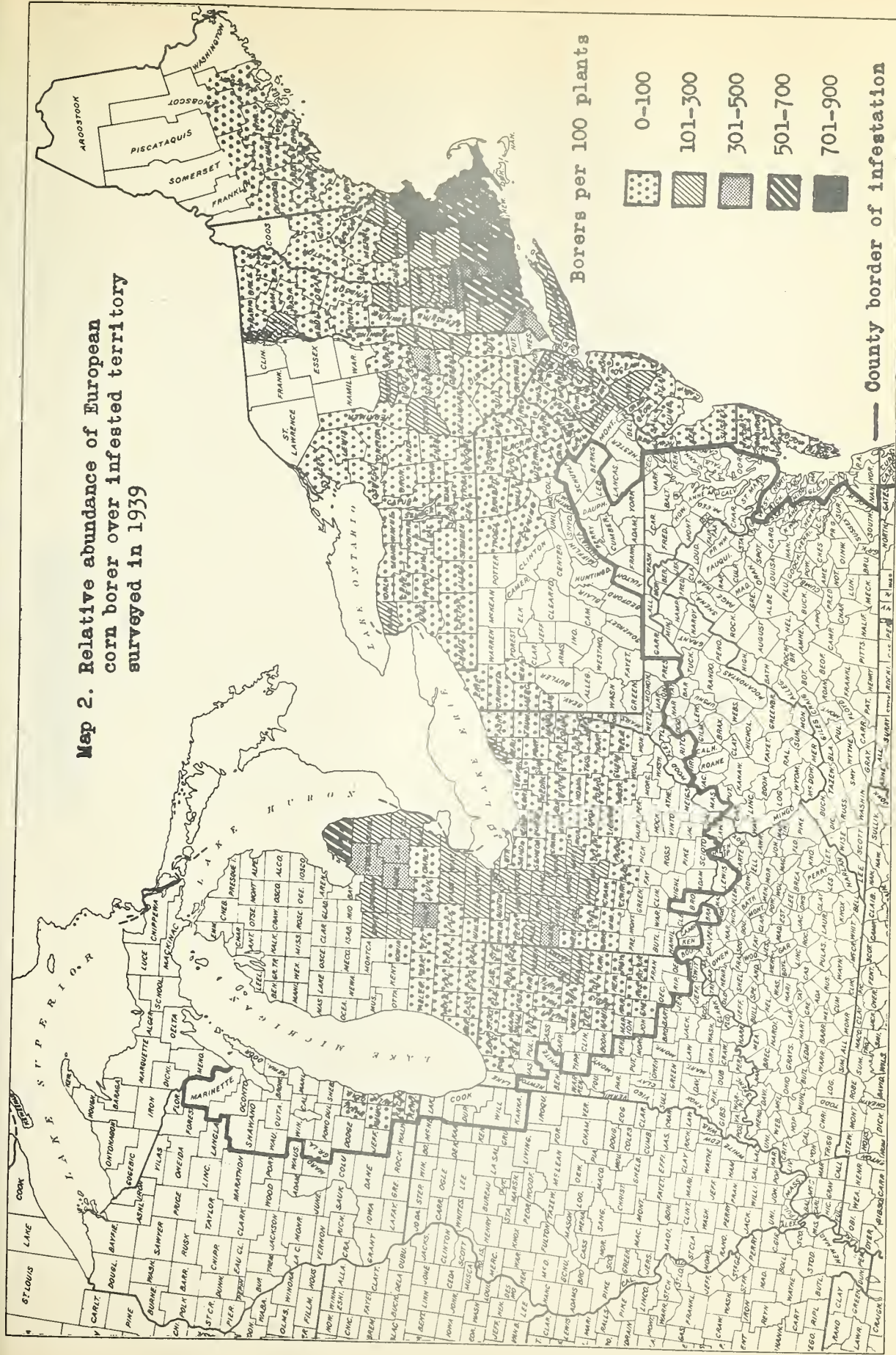
Borers per 100 plants

	<div> <div></div> <div>Increase</div> </div>	<div> <div></div> <div>Unchanged</div> </div>	<div> <div></div> <div>Decrease</div> </div>
1. The number of people who are employed in the service sector of the economy			
2. The number of people who are employed in the manufacturing sector of the economy			
3. The number of people who are employed in the agricultural sector of the economy			
4. The number of people who are employed in the government sector of the economy			
5. The number of people who are employed in the private sector of the economy			
6. The number of people who are employed in the public sector of the economy			
7. The number of people who are employed in the non-profit sector of the economy			
8. The number of people who are employed in the for-profit sector of the economy			
9. The number of people who are employed in the voluntary sector of the economy			
10. The number of people who are employed in the paid sector of the economy			
11. The number of people who are employed in the full-time sector of the economy			
12. The number of people who are employed in the part-time sector of the economy			
13. The number of people who are employed in the temporary sector of the economy			
14. The number of people who are employed in the permanent sector of the economy			
15. The number of people who are employed in the seasonal sector of the economy			
16. The number of people who are employed in the contract sector of the economy			
17. The number of people who are employed in the freelance sector of the economy			
18. The number of people who are employed in the self-employed sector of the economy			
19. The number of people who are employed in the employed sector of the economy			
20. The number of people who are employed in the unemployed sector of the economy			

County border of infestation



Map 2. Relative abundance of European corn borer over infested territory surveyed in 1939



Borers per 100 plants



County border of infestation

